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Message Text

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INFO OCT-01 EUR-12 ISO-00 ERDA-07 FEA-01 AID-05 CEA-01

CIAE-00 CIEP-02 COME-00 DODE-00 EB-07 FPC-01 H-02

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DRAFTED BY OES/APT/SEP:WAROOT:GEM
APPROVED BY OES/APT/SEP:WAROOT
ERDA:PFRANK
FEA:BEVERETT
EUR/SOV:SHUMPHREY
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R 030006Z MAR 76
FM SECSTATE WASHDC
TO AMEMBASSY MOSCOW

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E.O. 11652: N/A

TAGS: ENRG, UR

SUBJECT:ENERGY: GEOTHERMAL 08.0210

REF: 75 MOSCOW 17370

REQUEST EMBASSY TRANSMIT FOLLOWING TO MAKSIMOV SOONEST:

1. THE FOLLOWING STATEMENT HAS BEEN PREPARED IN RESPONSE TO YOUR LETTER OF DECEMBER 3 AND TO YOUR OFFER, WHILE YOU WERE IN WASHINGTON IN DECEMBER FOR THE ATOMIC ENERGY MEETING, TO PERSONALLY ESCORT ONE US EXPERT TO KAMCHATKA IF WE PRESENTED YOU WITH A CONVINCING CASE. WE BELIEVE THE CASE WHICH FOLLOWS IS CONVINCING AND THAT ONE MAN ALONE COULD NOT EFFECTIVELY EVALUATE OPERATIONS IN KAMCHATKA. AT LEAST THREE EXPERTS SHOULD PARTICIPATE IN
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THE VISIT.

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2. KAMCHATKA REMAINS THE ONLY GEOTHERMAL SITE IN THE USSR THAT, TO OUR KNOWLEDGE, HAS BEEN OR IS BEING USED FOR GENERATING ELECTRIC POWER. TWO TYPES OF GEOTHERMAL POWER PLANTS WERE CONSTRUCTED ON THE PENINSULA, A FLASHED STEAM CONVENTIONAL TURBINE PLANT AT PAUZHETSKAYA, AND A BINARY PLANT AT PARATUNSKAYA. ACCORDING TO OUR INFORMATION THE APPROXIMATELY 5 MWE HYDROTHERMAL PLANT CONTINUES IN OPERATION AND THE 750 KWE BINARY PLANT HAS BEEN SHUT DOWN. THE LATTER WAS THE FIRST FREON-OPERATED GEOTHERMAL ELECTRIC GENERATING STATION IN THE WORLD AND OPERATED FROM 1967 THROUGH 1973. IT SHOULD BE STRESSED THAT THERE ARE STILL NO OTHER NON-AQUEOUS GEOTHERMAL POWER CYCLES OPERATING ANYWHERE IN THE WORLD. THE FACT THAT THE SO-CALLED BINARY CYCLES ARE BEING ACTIVELY CONSIDERED - PARTICULARLY AT NILAND IN THE IMPERIAL VALLEY - AND THAT ECONOMICS APPEAR TO FAVOR SUCH CYCLES FOR MEDIUM TEMPERATURE GEOTHERMAL RESOURCES MERELY EMPHASIZES THE IMPORTANCE WHICH IS STILL ATTACHED TO THIS UNIQUE SOVIET EXPERIMENT. THERE IS NO SUBSTITUTE FOR A FIRST-AND-ONLY TECHNOLOGICAL EXPERIENCE. SIMILARLY, THE FLASHED STEAM PLANT, ALTHOUGH CONVENTIONAL IN TERMS OF TURBINE TECHNOLOGY, CANNOT BE DISMISSED AS "SIMILAR TO THE US GEYSERS PLANTS BUT 1/100TH OF THE SCALE". THE US HAS NO FLASHED STEAM PLANT IN OPERATION ALTHOUGH SEVERAL ARE BEING PLANNED.

3. IN ADDITION TO THE TWO POWER PLANTS, THE SOVIETS HAVE SOME INTERESTING NON-ELECTRIC GEOTHERMAL FACILITIES NEAR PARATUNSKAYA AND PAUZHETSKAYA. SPACE HEATING FOR 146 DWELLINGS (SIMILAR IN SIZE TO THE PRESENT BOISE INSTALLATION) AND APPROXIMATELY 15 ACRES OF GEOTHERMAL GREENHOUSES ARE AT THE FORMER WHILE THE LATTER CONTAINS ABOUT 20 ACRES OF GREENHOUSES. ALTOGETHER THESE INSTALLATIONS USE ABOUT TWICE THE AMOUNT OF GEOTHERMAL ENERGY AS DO ALL NON-ELECTRIC FACILITIES IN THE ENTIRE US. IT IS THUS PROBABLE THAT USEFUL INFORMATION COULD BE GAINED BY THE SITE VISIT BEYOND THAT DIRECTLY RELATED TO POWER PRODUCTION.

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4. THE US GEOTHERMAL WORKING GROUP IS EXPECTED TO BE MADE UP OF SCIENTISTS AND ENGINEERS FROM GOVERNMENT, INDUSTRY, AND UNIVERSITIES. THE MAKEUP OF THE TEAM IS SUCH THAT VISITS TO RESEARCH INSTITUTES AND PRESENTATION OF OPERATING RESULTS WILL NOT BE OF PRIMARY INTEREST TO THE MAJORITY. IN PARTICULAR, THE GEOLOGISTS AND RESERVOIR ENGINEERS ON THE TEAM WOULD BE MOST INTERESTED IN OBTAINING AN UNDERSTANDING OF THE OCCURRENCE AND ORIGIN OF GEOTHERMAL RESOURCE SYSTEMS OF ALL KINDS. THEREFORE, VISITS TO, AND DISCUSSIONS OF,

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THE GEOLOGIC SETTINGS OF THE RESOURCES AREEXTREMELY IMPORTANT. IN PARTICULAR QUESTIONS RELATING TO RESERVOIR LIFETIME/DRAWDOWN, WELL HISTORIES, DRILLING COMPLETION PRACTICES, PROBABLE CAUSE OF THE REPORTED REDUCTION OF PAUZHETSKAYA FIELD PRESSURE AND TEMPERATURE, INTERESTS AND POSSIBLE EXPERIMENTS IN WELL STIMULATION, CHANGES IN RESERVOIR GEOCHEMISTRY, AND

DETAILED ANALYSES OF RESERVOIR CIRCULATION AND RECHARGE PATTERNS - ALL CAN BEST BE ADDRESSED AT THE RESERVOIR SITE AND ARE OF PARTICULAR INTEREST TO US EXPERTS. SINCE KAMCHATKA HAS SIMILAR GEOLOGICAL CHARACTERISTICS TO PARTS OF ALASKA AND THE WESTERN US, SOVIET EXPERIENCE THERE HAS THE POTENTIAL FOR DIRECT APPLICATION TO US RESOURCE AREAS.

5. THE ENGINEERS ON THE TEAM WOULD ATTACH PRIMARY IMPORTANCE TO ACTUAL VISITS TO THE OPERATING GEOTHERMAL POWER STATIONS. MEMBERS OF THE TEAM WILL NOT BE SATISFIED BY PRESENTATIONS OF ENGINEERING DRAWINGS AND OPERATING REPORTS. MUCH CAN BE LEARNED FROM INSPECTING EQUIPMENT WHICH WAS USED FOR FIVE YEARS, EVEN IF NOW INACTIVE, AS IN THE CASE OF THE BINARY PLANT. OF SPECIAL INTEREST WILL BE AN EXAMINATION OF PARTS AND COMPONENTS FOR CORROSION AND WEAR, DESIGN SPECIFICATIONS, OPERATING HISTORY, MAINTENANCE EXPERIENCE, DESIGN CHANGES DURING THE OPERATING PERIOD, COMPARATIVE DESIGN PERFORMANCES, AND INDICATED CHANGES NOT YET EFFECTED. ALTHOUGH MUCH INFORMATION OF THIS TYPE CAN BE EXCHANGED ANYWHERE, THERE IS A SPECIAL VALUE TO DESIGN AND OPERATIONS ENGINEERS ATTACHED TO THE INSPECTION OF COMPONENTS AND THE DIRECT OBSERVATION OF CORROSION AND PRECIPITATES,
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AS THEY ARE DESCRIBED AND AN OVERVIEW OF PLANT LAYOUT AND ACCESS WHICH EVEN PHOTOGRAPHS FAIL TO PROVIDE. INGERSOLL

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